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Title: Proof vs provability: on Brouwer's time problem.

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This paper aims at addressing some consequences of Brouwer's conception of mathematics as grounded on an intuition of time in two directions: one epistemological, the other ontological. In the former direction, Brouwer's idea of mathematical truth of a statement A being essentially related to the actual existence of a proof of A, is questioned on the basis of the consequence this has in terms of subverting what seems to the author to be "a fundamental modal/tense-logical principle" that he calls the "principle of prior possibility" (PP), namely

(PP) Nothing becomes actual unless previously possible.

A consequence of (PP) for mathematical knowledge would be that, having constructively shown the truth of A, i.e., having exhibited a proof of A, one is legitimate to conclude that it was true before that A was provable. This seems to contradict the view that both Brouwer and Heyting seem to have held about "A is provable" being justified by the existence of a proof of A (therefore, being it impossible for the former statement to be true before the latter fact). Owing to (PP) being not committed to any realist conception of mathematics and being justified solely on the ground of a logic of the flow of time that Brouwer in particular seemed to agree with, the author claims that the previous argument discloses a problem with intuitionism that had not been identified before. The second part of the paper tries to say something about the coherency of the view of time which is at the basis of intuitionism from a metaphysical point of view instead. The main problem here is at the level of the interpretation. After

stressing some issues suggesting a potential conflict between Brouwer's intuition of time, or, rather, some attempted accounts of it, and the idea of time that follows from relativity theory, the author focuses on M. van Atten's attempt to fill the missing details in Brouwer's conception by relying on Husserl's concept of "transcendental subject" [On Brouwer, Toronto, ON: Thomson, Wadsworth, 2004; MR2054116].